INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 2004	**Park:** Shenandoah NP
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No co-investigators

Permit#:
SHEN-2001-SCI-0002

Park-assigned Study Id. #:
SHEN-00260

Project Title:
MONITORING AND ANALYSIS OF REFERENCE SUSPENDED SEDIMENT LOAD IN AN UNDISTURBED, FORESTED, ROSGEN CLASS B CHANNEL IN SHENANDOAH NATIONAL PARK. (MEADOW RUN)

Permit Start Date: Feb 01, 2001	**Permit Expiration Date** May 31, 2004
Study Start Date: Feb 01, 2001	**Study End Date** May 31, 2007

Study Status:
Continuing

Activity Type:
Research

Subject/Discipline:
Water / Hydrology

Objectives:
To determine the actual suspended sediment load, over the range of water discharge rates, for a natural, undisturbed, forested Rosgen Class B stream reach in Shenandoah National Park.

Findings and Status:
The study is progressing well.

As reported last year, water flows generated by hurricane Isabel significantly changed the channel cross-section and longitudinal dimensions at the study site. Massive amounts of large stone were moved along the streambed during this event, essentially burying the channel area where monitoring equipment had been installed. This has made extensive resurvey of channel dimension, pattern, and profile a top priority for the second year in a row. New channel surveys scheduled for this summer will help determine the extent of change in channel geometry and how this is affecting previously determined stage-discharge and sediment relationships.

Analysis of collected measurements will yield the following products:

1) A suspended sediment reference rating curve, expressing suspended sediment as a function of stream water discharge for an undisturbed Rosgen

Class B Stream Reach in Virginia.

(2) A dimensionless sediment reference curve, expressing suspended sediment as a function of the fraction of bankfull stream water discharge for an undisturbed Rosgen Class B Stream Reach in Virginia.

(3) A non-linear statistical model of suspended sediment load as a function of stream water turbidity for an undisturbed Rosgen Class B Stream Reach in Virginia.

(4) Dimensionless reference curves expressing the ratios of natural channel hydraulic geometry to bankfull dimension for an undisturbed Rosgen Class B Stream Reach in Virginia.

(5) Stream Bed particle size distributions, determined using the Wolman Pebble Count method, for an undisturbed Rosgen Class B Stream Reach in Virginia.

(6) Data showing stream water discharge, water level, turbidity, and suspended sediment load for an undisturbed Rosgen Class B Stream Reach in Virginia.

(7) Ancillary measurements and possible reference rating curves for stream water temperature, conductivity, dissolved oxygen, pH, and nitrate nitrogen in an undisturbed Rosgen Class B Stream Reach in Virginia.

In addition, new post-Isabel field surveys will determine any changes in channel geomorphology, capacity, and streambed particle size distribution resulting from the hurricane induced water flows.

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?

No

Funding provided this reporting year by NPS:	**Funding provided this reporting year by other sources:**
0	5000

Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college

Full name of college or university:	**Annual funding provided by NPS to university or college this reporting year:**
n/a	0